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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,692

10/18/2005

Kazuo Tanaka

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2007

25944 7590 07/24/2008

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P.O. BOX 320850
ALEXANDRIA, VA 22320-4850

EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

07/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,692	Applicant(s) TANAKA ET AL.	
	Examiner Monique M. Wills	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/11/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office Action is responsive to the Amendment filed April 25, 2008.

The rejection of claims 1, 3, 7 & 9-10 under 35 U.S.C. 102(b) as being anticipated by Wolfe et al. U.S. Patent 5,968,680 is overcome. The rejection of claims 4 & 8 under 35 U.S.C. 103(a) as being unpatentable over Wolfe et al. U.S. Pat. 5,986,680 is overcome. The rejection of claims 5-6 & 11-12 under 35 U.S.C. 103(a) as being unpatentable over Wolfe et al. U.S. Pat. 5,986,680 in view of Matsui et al. U.S. Pub. 2006/0019139 is overcome. Claims 1-12 are newly treated as follows:

Allowable Subject Matter

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art is silent to the fuel cell-atmospheric-pressure turbine hybrid system of claim 1 including an evaporator capable of recovering heat from the turbine exhaust gas discharged from the turbine and generating steam by the recovered heat, and a reforming device configured to reform the atmospheric pressure fuel by using steam generated by the evaporator and to supply the reformed fuel to the fuel cell.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 & 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. U.S. Pub. 2006/0162316 in view of Ferrall et al. U.S. Pub. 2004/0150366.

Tanaka teaches a turbine hybrid system comprising: a combustor for burning an exhaust gas discharged from an atmospheric-pressure, high-temperature fuel cell; a turbine in which a combustion gas discharged from the combustor expands and the pressure of the combustion gas drops to a negative pressure; a compressor for compressing an exhaust gas discharged from the turbine to increase the pressure of the exhaust gas; and a heat exchanger . See the Abstract and Fig. 1.

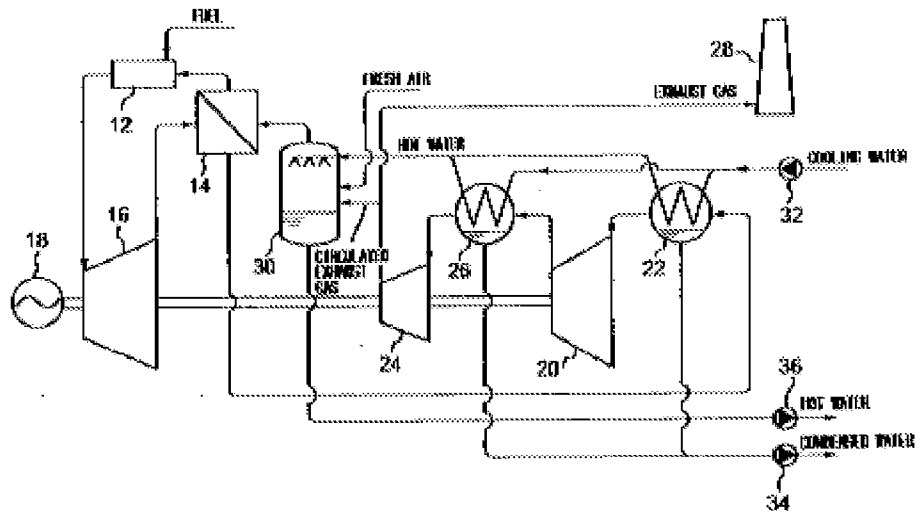


FIG. 1

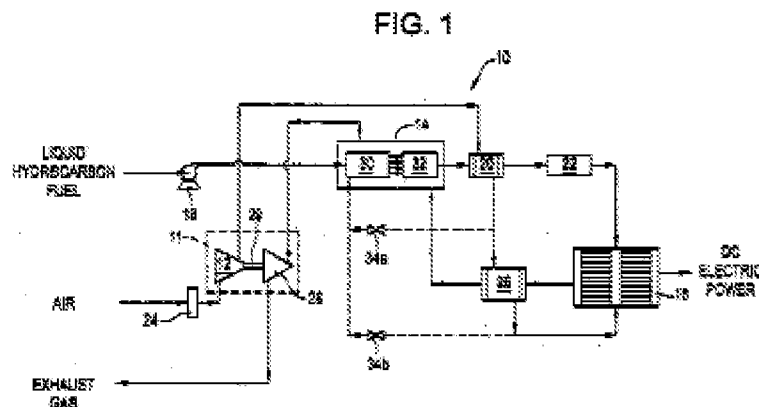
The turbine hybrid system further comprising a cooling device disposed below the heat exchanger to cool an exhaust gas discharged from the heat exchanger. See the Abstract. The turbine system further comprises a second compressor (20) disposed coaxially with the compressor (24) to compress the exhaust gas discharged from the compressor, and a second cooler (22) for cooling the exhaust gas to be supplied to the second compressor. See Figure 1. The high-temperature exhaust gas discharged from the turbine 16 is supplied to the regenerative heat exchanger 14. The regenerative heat exchanger 14 makes a humid, air-exhaust mixed gas exchange heat with the high-temperature exhaust gas to cool the high-temperature exhaust gas and to preheat the humid, air-exhaust mixed gas. The high-temperature, humid air-exhaust mixed gas is supplied as combustion air to the combustor 12. Thus the amount of heat emitted outside the atmospheric pressure combustion turbine system can be reduced,

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the efficiency of the atmospheric pressure combustion turbine system can be improved and the output of the turbine 16 can be increased by increasing the flow of the high-temperature combustion gas through the turbine 16. See paragraph 21.

Tanaka does not expressly disclose the atmospheric-pressure turbine hybrid system treating exhaust gas from a fuel cell.

However, Ferrall teaches that it is well known in the art to employ turbine hybrid systems in fuel cell. See Figure 1.



Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the fuel cell of Ferrall as the power system in the atmospheric-pressure turbine hybrid of Tanaka, in order to recover heat from high temperature exhaust at low costs (See Tanaka at paragraph 4).

Response to Arguments

Applicant's arguments, see pages 7-8, filed April 25, 2008, with respect to the previous pending rejections have been fully considered and are persuasive. All rejections over Wolfe have been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Monique M Wills/
Examiner, Art Unit 1795

/Stephen J. Kalafut/
Primary Examiner, Art Unit 1795